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DATE: October 15, 2002

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TO: U.S. Patent & Trademark Office  
Examining Group 2800

FAX NO.: 1-703-872-9318

FROM: Steven M. Jensen

FAX NO.: 617-439-4170

Our Docket No.: 55892 (71850)

No. of Pages (incl. cover): 6

Re: U.S. Serial Number 09/917,289

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#6/ Response  
Rece'  
10-16-02

Attorney Docket No. 55892 (71850)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: M. Frash et al.

EXAMINER: H. Elkassabgi

U.S.S.N.: 09/917,289

GROUP: 2834

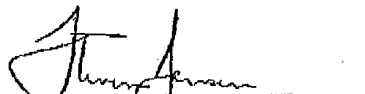
FILED: July 27, 2001

FOR: PERMANENT MAGNET MOTOR ASSEMBLY HAVING A DEVICE AND  
METHOD OF REDUCING PARASITIC LOSSES

**CERTIFICATE OF FACSIMILE TRANSMISSION**

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By:

  
Steven M. Jensen

Assistant Commissioner for Patents  
Washington, DC 20231

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**RESPONSE TO OFFICE ACTION**

TECHNOLOGY CENTER 2800

Sir/Madam:

Applicants appreciate the notification of allowable subject matter, i.e., that claims 4, 5, 7-10, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. It is assumed that claim 12 is also "objected to", since claim 12 is not included in any of the rejections.

In response to the restriction requirement, Applicants confirm the provisional election of Group I, claims 1-16, with traverse. The present election is made solely to comply with the Office Action and should not be construed as a surrender of any subject matter of the application. Applicants reserve the right to file divisional application(s) on the non-elected claims.

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Applicants traverse the restriction requirement on the basis that, while the claims of Groups I and II are drawn to a permanent magnet motor assembly and method, respectively, the Examiner has failed to demonstrate that either the process as claimed can be used to make other and materially different product, or the product as claimed can be made by another and materially different process. According to MPEP §806.05(f), it is permissible to define a product in terms of a process by which it is made, in order to define the invention.

It is not clear how the claims of Groups I and II satisfy the above criteria for restricting on the basis of "Process of Making and Product Made." On page 2 of the Office Action, it is stated "[i]n the instant case an electromagnetic coil can be replaced with the permanent magnet in order to reduce the magnetic flux." However, the claims of both Groups I and II require positioning at least one magnet along a length of the rotor (see, e.g., claims 1 and 17), and therefore it would not be possible to substitute "an electromagnetic coil" for the magnet(s) without contravening the language of the claims.

Because the Examiner has failed to satisfy the burden of showing that either the process as claimed can be used to make other and materially different product, or the product as claimed can be made by another and materially different process, it is respectfully requested that the restriction requirement be withdrawn.

With reference to claim 1, Applicants claim a permanent magnet motor assembly, including a stator; a rotor rotating about an axis and having an end proximate the stator; a magnet positioned along a length of the rotor, the magnet having a proximal end positioned near the stator; and a shield covering the proximal end of the magnet to reduce magnetic field leakage between the proximal end of the magnet and the stator.

As shown in FIG. 4 of the application, shield 30 can comprise a cup 40 which covers the proximal end of magnet 20 so as to block stray flux lines from impacting the stator, thereby preventing heat build-up on the stator (see page 8, first and second paragraphs). Alternatively, the shield 30 can comprise a snap-fit ring 50 covering the

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top end of the magnet (see FIGS. 5A and 5B). By providing a shield (e.g., made of magnetic steel) to cover the proximal end of the magnet and shield the flux, parasitic losses are reduced and motor efficiency can be improved in the motor assembly.

Claims 1 and 6 were rejected under 35 USC §102(b) as being anticipated by U.S. Patent 4,827,170 to Kawamura et al. (hereinafter "Kawamura"). Claims 2 and 3 were rejected under 35 USC §103(a) as being unpatentable over Kawamura in view of U.S. Patent 6,147,427 to Ackermann et al. (hereinafter "Ackermann"). Claims 11, 13, and 16 were rejected under 35 USC §103(a) as being unpatentable over Kawamura in view of Ackermann and U.S. Patent 6,359,363 to Foerster et al. (hereinafter "Foerster"). These rejections are respectfully traversed.

Kawamura fails to teach or suggest a permanent magnet motor assembly having a shield covering a proximal end of a magnet to reduce magnetic field leakage between the proximal end of the magnet and the stator. In Kawamura, an electric generator is provided with a rotational shaft 1, a stator 6, a rotor 4, and a permanent magnet 4b positioned on the rotor 4. The permanent magnet 4b is "force-fitted in the outer cylindrical sleeve 4a" (column 2, lines 57-58).

In the Office Action, the Examiner identified the permanent magnet 4b in Kawamura as corresponding to the "shield" of claim 1; it is assumed that the Examiner intended to identify the outer cylindrical sleeve 4a as corresponding to the "shield" of Applicants' claim 1. However, the outer cylindrical sleeve 4a which covers the permanent magnet 4b in Kawamura is not a "shield" as recited in Applicants' claim 1. The cylindrical sleeve 4a is formed of "partially stabilized zirconia" for providing mechanical strength and heat insulation (column 3, lines 16-19). Because the cylindrical sleeve is made of non-magnetic material, it is not capable of reducing magnetic field leakage. Moreover, if a magnetic material were substituted for the zirconia material of the cylindrical sleeve 4a, the motor disclosed in Kawamura would not function properly, as the entire length of the permanent magnet 4b would be shielded, thus shielding the useful flux of the magnet. In contrast, the Applicants' claimed invention requires shielding a proximal end of a magnet to reduce magnetic flux leakage between the proximal end of the magnet and the stator.

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As neither the permanent magnet 4b, cylindrical shield 4a, or any other part disclosed in Kawamura include the structure or perform the function of the "shield" recited in the Applicants' claimed invention, Kawamura cannot anticipate or otherwise render obvious the Applicants' claimed invention.

With reference to claims 2 and 3, Ackermann fails to remedy the deficiencies of the Kawamura reference. Ackermann relates to a rotary actuator, not a motor, the actuator providing limited rotation of a rotor 1 (see FIG. 1) instead of 360° rotation thereof. Permanent magnets 5 and 6 are fixed to a stator 2, which includes a fixed stator coil 7.

In the Office Action, it was stated that Kawamura could be modified by the teachings of Ackermann "for the purpose of supporting the coil" (Office Action, page 5). It is unclear how or why one of ordinary skill in the art would modify Kawamura to include the stator coil 7 taught in Ackermann. In Kawamura, the stator 6 is provided with stator windings 6a which allow the stator 6 to produce electromotive forces which are converted to direct current (see column 3, lines 53-58). Therefore, Kawamura already provides a mechanism for receiving magnetic flux, and there is no need to include a coil such as that taught in Ackermann. Accordingly, Ackermann could not be combined with Kawamura to teach or suggest the Applicants' claims 2 and 3.

With reference to claims 11, 13, and 16, Foerster was cited for teaching a permanent magnet motor having "a first rotor (12) and second rotor (28), where the second rotor is rotating about the rotational axis for the purpose of having a compact structure" (Office Action, page 6).

In Foerster, a small commutator motor 1 is provided with a rotor shaft 2, a first rotor bearing 12, and a second rotor bearing 28. It should be noted that the first and second rotor bearings 12 and 28 are fixed in position by end shields 10 and 29, respectively (see column 4, lines 18-19 and 55-57). Therefore, the rotor bearings 12 and 28 do not constitute first and second rotor sections which rotate about an axis, as required in the Applicants' claimed invention. Accordingly, if Foerster was somehow

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combined with Kawamura, the combination could not teach or suggest the Applicants' claims 11, 13, or 16.

It is believed that the claims are now in condition for allowance. However, if there are any outstanding issues, the Examiner is urged to call the Applicants' representative at the telephone number listed below.

Applicants believe that additional fees are not required for consideration of the within response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. 04-1105.

Respectfully submitted,  
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Dike, Bronstein, Roberts & Cushman  
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Date: October 15, 2002

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